

Effect of different frequencies of continuous ultrasound on mechanical muscle strain/ Mohamed Mostafa Mohamed Mohamed Essa: Misr University for Science and Technology, Faculty of Physical Therapy, Department of Biomechanics. Supervisors: Prof. Dr.Salam Mohamed El-Hafez, Dr.Nagui Sobhi Nassif and Dr.Sohair Mohamed Abdel Rahman.Thesis:M.Sc;Biomechanics,2010.

Abstract:

The purpose of this study: was to investigate the load–deformation response of skeletal muscle under the effect of different frequencies of continuous ultrasound. Thirty New-Zealand rabbits weighing 2-2.5 kg, aging 5-6 months were used and divided into three groups. They were treated with 1-MHz continuous ultrasound for single dose (group A) ,treated with 3-MHz continuous ultrasound for single dose (group B) and no treatment for the third group (control group ; group C) .Then a dissection of plantaris muscle of the rabbits was done and taken for the mechanical testing experiment .A tensile testing machine (Instron instrument serial no.53479) was used to measure the load subjected to the specimen at high yielding point and its corresponding deformation .**The result of the study:** showed that deformation of the samples in response to the applied load at the high yielding point revealed a significant difference between group (A) and control group (C) ,non statistical significant difference between group(B) and control group (C). Non statistical significant difference between group (A) and group (B) .The result of this study agree with the findings in some clinical researches which support the application of ultrasound within the program for musculoskeletal problem. **Conclusion :** With the limitations of this study it can be concluded that ultrasound regardless its frequency prior to stretching has significantly influence on the extensibility of the muscle.

Key Words:

Continuous ultrasound, ultrasound frequencies, mechanical strain, tensile strain, skeletal muscle.